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10/699,354

10/31/2003

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03/19/2007

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EXAMINER

AFZALI, SARANG

ART UNIT

PAPER NUMBER

3726

| SHORTENED STATUTORY PERIOD OF RESPONSE | MAIL DATE | DELIVERY MODE |
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3 MONTHS

03/19/2007

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

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| Office Action Summary | Application No. 10/699,354 | Applicant(s) BENETEAU ET AL. | |
| | Examiner Sarang Afzali | Art Unit 3726 | |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on Amendment filed 12/28/2007.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-19 is/are pending in the application.
- 4a) Of the above claim(s) 8-19 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-7 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 31 October 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Response to Amendment

1. The applicant's amendment filed on 12/28/2006 has been fully considered and made of record.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 1-7 are rejected under 35 U.S.C. 103(a) as being unpatentable over Randolph Jr. et al. (U.S. 6,453,211) in view of Applicant's Admitted Prior Art (AAPA) and further in view of Burke et al. (US 6,508,000).
4. As applied to claim 1, Randolph Jr. et al. teach a method of repairing a damaged gas turbine blade comprising of the steps:
 - removing titanium alloy material from along leading and trailing edges of the airfoil, and along a radially outer tip of the airfoil to form respective leading edge and trailing edge, with each define cut-back depths;
 - depositing titanium weld material onto the leading edge and trailing edge cut-backs; and
 - removing at least some of the titanium weld material to obtain pre-desired finished dimensions for the leading and trailing edges.

Note that Randolph Jr. et al. teaches (Fig. 3 and col. 2, lines 14-29 and col. 9, lines 44-54) the three steps of invention cited including first step of removing titanium material from the damaged area of the leading edge (42) of each blade (12b), second step of depositing titanium weld material onto the leading edge (42) of each blade (12b), and third step of removing at least some of the titanium weld material to obtain a desired finish for each blade (12b) and further teaches that the same procedure can be made on the trailing edge (44, Fig. 3, col. 9, lines 44-46) of each blade (12b).

Randolph Jr. et al. fails to explicitly teach the repair done on "a radially outer tip of the airfoil".

AAPA teach a known method of repairing a turbine compressor blade including mechanically removing, such as by grinding a worn and/or damaged tip area and then adding a material deposit to the tip to form the tip to a desired dimension (paragraph [0005], lines 1-8). Note that the grinding step would make a cut-back in the tip area by removing the damaged portion.

Burke et al. teach a method of repairing a damaged gas turbine engine component such as an airfoil blade (18, Fig. 6) wherein depending on the severity of the damaged area, either a full length or only localized/partial sections are replaced/repared (col. 11, lines 5-11 and 27-32). Also, note that Burke et al. teach the repair is not only done on the damaged leading and trailing edges but also on the tip area extended from the leading edge to the trailing edge of the blade airfoil (col. 12, lines 13-15, Fig. 5).

It would have been obvious to one of ordinary skill in the art at the time of invention to have provided Randolph Jr. et al. with the repair of the outer tip portion as taught by AAPA including the necessary length and size of the repair as taught by Burke et al., in order to provide an effective way of replacing a worn or damaged tip area of a compressor blade.

5. As applied to claim 2, Randolph Jr. et al./AAPA/Burke et. teach a method wherein removing titanium alloy material further comprises machining away titanium alloy material along only the radially outermost portions of the leading and trailing edges extending from the tip towards a base of the airfoil (Fig. 3).

6. As applied to claim 3, Randolph Jr. et al./AAPA/Burke et al. teach a method wherein machining away titanium alloy material along only the radially outermost portions of the leading and trailing edges further comprises forming a rounded corner between the leading edge and trailing edge cut-backs and un-machined portions of the airfoil extending between the leading and trailing edge outermost portions and the base of the airfoil (Fig. 3).

7. As applied to claim 4, Randolph Jr. et al./AAPA/Burke et al. teach a method wherein forming a rounded corner between the leading edge and trailing edge cut-backs and un-machined portions of the airfoil further comprises forming a semi-circular corner that has a predetermined arc and radius of curvature (Fig. 3).

8. As applied to claim 5, Randolph Jr. et al./AAPA/Burke et al. teach a method wherein machining away titanium alloy material along only the radially outermost portions of the leading and trailing edges further comprises machining away titanium

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alloy material along a length of about half a span of the airfoil between the tip and the base of the airfoil (Fig. 3).

9. As applied to claim 6, Randolph Jr. et al./AAPA/Burke et al. teach a method wherein machining away titanium alloy material along only the radially outermost portions of the leading and trailing edges further comprises blending the titanium weld material (Fig. 3).

10. As applied to claim 7, Randolph Jr. et al./AAPA/Burke et al. teach a method wherein machining away titanium alloy material along only the radially outermost portions of the leading and trailing edges further comprises contouring the leading edge (Fig. 3).

Double Patenting

11. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. A nonstatutory obviousness-type double patenting rejection is appropriate where the conflicting claims are not identical, but at least one examined application claim is not patentably distinct from the reference claim(s) because the examined application claim is either anticipated by, or would have been obvious over, the reference claim(s). See, e.g., *In re Berg*, 140 F.3d 1428, 46 USPQ2d 1226 (Fed. Cir. 1998); *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) or 1.321(d) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent either is shown to be commonly owned with this application, or claims an invention made as a result of activities undertaken within the scope of a joint research agreement.

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Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

12. Claims 1-7 are rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1-7, and 14 of U.S. Patent No. 6,532,656 in view of Randolph Jr. et al. (U.S. 6,453,211).

13. As applied to claim 1, Wilkins et al. ('656, claim 1) teach a method of repairing a damaged gas turbine blade comprising of the steps:

removing material from along leading and trailing edges of the airfoil, and along an entire edge area of a radially outer tip of the airfoil to form respective leading edge, trailing edge, and tip cutbacks which each define cut-back depths; wherein the edge area extends from the leading edge to the trailing edge;

depositing weld material onto the leading edge, trailing edge, and tip cut-backs; and removing at least some of the weld material to obtain pre-desired finished dimensions for the leading and trailing edges, and radially outer tip.

Wilkins et al. ('656) teach the claimed invention with the exception of explicitly teaching the material of the blade being "titanium".

However, Randolph Jr. et al. disclose a method of manufacturing gas turbine engine blades (12b, Fig. 3) and in particular a method of repairing expensive damaged blades (col. 2, lines 8-13) wherein it is well-known to manufacture gas turbine engine blades from high strength materials with a high degree of accuracy reflected by relatively small manufacturing tolerances, such as titanium (col. 2, lines 1-7 and 14-16).

It would have been obvious to one of ordinary skill in the art at the time of invention to have provided Wilkins et al. ('656) with the titanium alloy material as taught by Randolph Jr. et al., in order to provide a high strength and suitable material used for the gas turbine engine compressor blade.

14. As applied to claim 2, Wilkins et al. ('656, claims 1-2) in view of Randolph Jr. et al. teach a method of repairing a damaged gas turbine blade wherein removing titanium alloy material further comprises machining away titanium alloy material along only the radially outermost portions of the leading and trailing edges extending from the tip towards a base of the airfoil.

15. As applied to claim 3, Wilkins et al. ('656, claims 1-3) in view of Randolph Jr. et al. teach a method of repairing a damaged gas turbine blade wherein machining away titanium alloy material along only the radially outermost portions of the leading and trailing edges further comprises forming a rounded corner between the leading edge and trailing edge cut-backs and un-machined portions of the airfoil extending between the leading and trailing edge outermost portions and the base of the airfoil.

16. As applied to claim 4, Wilkins et al. ('656, claims 1-3 & 14) in view of Randolph Jr. et al. teach a method of repairing a damaged gas turbine blade wherein forming a rounded corner between the leading edge and trailing edge cut-backs and un-machined portions of the airfoil further comprises forming a semi-circular corner that has a predetermined arc and radius of curvature.

17. As applied to claim 5, Wilkins et al. ('656, claims 1-2 & 5) in view of Randolph Jr. et al. teach a method of repairing a damaged gas turbine blade wherein machining

away titanium alloy material along only the radially outermost portions of the leading and trailing edges further comprises machining away titanium alloy material along a length of about half a span of the airfoil between the tip and the base of the airfoil.

18. As applied to claim 6, Wilkins et al. ('656, claims 1, 2, 4, & 6) in view of Randolph Jr. et al. teach a method of repairing a damaged gas turbine blade wherein machining away titanium alloy material along only the radially outermost portions of the leading and trailing edges further comprises blending the titanium weld material.

19. As applied to claim 7, Wilkins et al. ('656, claims 1, 2, 4, 6 & 7) in view of Randolph Jr. et al. teach a method of repairing a damaged gas turbine blade wherein machining away titanium alloy material along only the radially outermost portions of the leading and trailing edges further comprises contouring the leading edge.

This is an obviousness-type double patenting rejection.

Response to Arguments

20. Applicant's arguments with respect to claims 1-7 in a reply dated 12/28/2006 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

21. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Sarang Afzali whose telephone number is 571-272-8412. The examiner can normally be reached on 7:00-3:30 M-F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Bryant can be reached on 571-272-4526. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a

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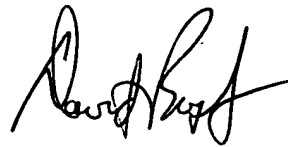
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USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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3/8/2007



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3/12/07